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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/560,373	04/28/2000	Gregory Lucius Meredith	MS147248.1	3570

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EXAMINER	
KISS, ERIC B	

ART UNIT	PAPER NUMBER
2122	15

DATE MAILED: 11/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PPG

Office Action Summary	Application No.	Applicant(s)	
	09/560,373	MEREDITH ET AL.	
	Examiner	Art Unit	
	Eric B. Kiss	2122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 September 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 May 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 4, 2003, has been entered.

Response to Arguments

2. Applicant's arguments presented in "Applicants Response to Final Office Action Mailed June 13, 2003", transmitted on July 25, 2003 (hereinafter referred to as Paper No. 11), have been fully considered but they are not persuasive.

3. The following remarks were recited in the Advisory Action mailed August 7, 2003:

> In reagrd to the rejection of claims 1-6 under 35 U.S.C. 112, first paragraph, Applicant cites portions of the instant specification that suggest purported mertis of Applicant's two-verb process algebra. Nowhere in the instant specification is it disclosed how the two verbs are actually used in arriving at the workflow processing system described. Fig. 1d, the only apparent piece of evidence of how the two-verb process algebra is used or defined, merely states a set of relational rules and does not suggest, for example, representing parallelsim by separating communicating and independent transactions. In the absense of further evidence, the Examiner concludes that one of ordinary skill in the art would not be able to realize the purported use of the two-verb process algebra based on Applicant's disclosure and arguments.

For these reasons restated above, the rejection of claims 1-6 under 35 U.S.C. §112, first paragraph, is maintained and reproduced below.

4. The following remarks were recited in the Advisory Action mailed August 7, 2003:

> In regard to the rejection of claims 1-6 and 23 under 35 U.S.C. §101, it is reiterated that these rejections are based on claims to a non-statutory invention. Regardless of Applicant's assertion that the invention as a whole can be applied to a variety of fields, merely performing the method steps set forth in the rejected claims still produces not concrete and tangible result. The claimed steps are directed toward the manipulation of a data representation of a business process. At the end of performing the recited steps, the business process would not have been necessarily carried out or itself changed in any concrete tangible way.

For these reasons restated above, the rejection of claims 1-6 and 23 under 35 U.S.C. §101, is maintained and reproduced below.

5. The following remarks were recited in the Advisory Action mailed August 7, 2003:

> In response to Applicant's arguments on page 6, in paragraph 2 [of Paper No. 11], the Examiner asserts that the copy flow of Template splits a work item into two separate flows by sending two identical copies of a work item to separate destination tasks. The destination tasks of Template can be completely different tasks. This allows, as stated in the previous office action, operations using the same flow to be represented as independent and different tasks.

6. In response to Applicant's arguments on page 6, in paragraph 3, continuing onto page 7 (of Paper No. 11), as pointed out in the Final Rejection mailed June 13, 2003, *Template* comprises a distinguishing model component (copy flow junction box; see "Creating copy flows" on page 3-20) for distinguishing between concurrent autonomous (using separate flows) business operations and concurrent interdependent (using a single flow) business operations (the copy flow allows operations using the same flow to be represented independently; see Fig. 3-3 on page 3-12 in which the copy flow junction box supplies the same "REQUISITION" flow to both the "Approve Requisition" and "Check Inventory" tasks). The Examiner reasserts that the

copy flow distinguishes the **tasks** associated with the copies of the flow and not the flows themselves.

7. In response to Applicant's arguments on page 7, in paragraph 2 (of Paper No. 11), as pointed out in the Final Rejection mailed June 13, 2003, *Template* comprises a component (compound flow junction box) for defining concurrent synchronizing constraints as occurring upon the completion of the autonomous operations (forming a concatenation of the two or more input work items, as a result of an *And* junction condition; see "Creating compound flows" on page 3-19) and at least one boundary establishing component (flows) for defining transaction (work item) boundaries (a flow defines a possible route between tasks through which a work item can travel; see Table 3-1 on page 3-3).

8. In response to Applicant's arguments on page 8, in the first full paragraph (of Paper No. 11), the Examiner asserts that Applicant's claims recite the use of "a process algebra", *per se*. None of the claims recite the specific use of a two-verb derivation of PI calculus (e.g., combinators) to separate autonomous and interdependent transactions. Therefore, Applicant's argument is unpersuasive as it relates to features that are not recited in the claims.

9. In view of Applicant's unpersuasive arguments, the previous grounds of rejection under 35 U.S.C. §§ 102(b), 103(a) are maintained and reproduced below.

Claim Rejections - 35 USC § 112

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claimed method steps of using a first and second verb of a process algebra to represent and differentiate independent and interdependent operations (claim 1, lines 3-7) apparently refer to page 14, third paragraph, of the specification. This portion of the specification describes the process algebra of the present invention as a variation of a prior art "conventional" PI calculus, which, as specified, is based on a single verb. The modification is described as "[allowing] for explicitly representing parallelism within the business workflow process by separating communicating concurrent transactions from independent concurrent transactions and mitigating deadlock associated with conventional systems". However, the specification lacks disclosure of how the "verbs" are related to the indicated figure (Fig. 1d) and a mode for carrying out the modification of the prior art process algebra. The specification further does not explicitly state the particular roles of each individual variable in representing parallelism or mitigating deadlock within a system. As related to the claimed limitations, the specification does not clearly relate the concept of process algebra to that of business workflow and does not adequately describe

how the verbs are used to differentiate an independent operation from a set of interdependent operations. Because the specification does not adequately describe the claimed subject matter, it would not enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim Rejections - 35 USC § 101

12. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

13. Claims 1-6 and 23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As per claims 1-6 and 23, these claims are directed toward the manipulation of abstract data, i.e. process algebra verbs and business process operations. A process that consists solely of the manipulation of an abstract idea is not concrete or tangible. See *In re Warmerdam*, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). See also *Schrader*, 22 F.3d at 295, 30 USPQ2d at 1459. The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future

investigation or research (*Brenner v. Manson*, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); *In re Ziegler*, 992, F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)).

Claim Rejections - 35 USC § 102 and/or 35 USC § 103

14. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

15. Claims 7-14, 22-25, and 28 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Release 8.0 of the Workflow Template software product publicly available from Template Software, Inc. in 1998 as evidenced by "Using the WFT Development Environment", 1998 (hereinafter Template).

As per claim 7, Template discloses a user interface component (Workflow Design Editor) and a plurality of model components (tasks, flows, work items, roles, junctions, and labels) accessible through the user interface component and adapted to allow a user to create a model of a business process (workflow design; see "Introduction" on page 3-2, and in particular, the first paragraph of that section), the plurality of model components comprising a distinguishing model component (copy flow junction box; see "Creating copy flows" on page 3-20) for distinguishing between concurrent autonomous (using separate flows) business operations and concurrent interdependent (using a single flow) business operations (the copy flow allows operations using the same flow to be represented independently; see Fig. 3-3 on page 3-12 in which the copy flow junction box supplies the same "REQUISITION" flow to both the "Approve Requisition" and

"Check Inventory" tasks). It is unclear from the disclosure of Template whether a process algebra is used to implement the model described. However, as admitted by Applicant, "it is well known in the art that PI-calculus can be utilized to model processes" (see page 12, paragraph 3 of the amendment mailed April 8, 2003). Therefore, if not already provided, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the product described in Template to include the use of a process algebra. One would be motivated to do so implement process modeling using well-established and widely supported means.

As per claim 8, Template further discloses a transaction grouping model component (compound flow junction box) for grouping business operations into concurrent interdependent transactions (forms a work item set associated with the compound flow; see "Creating compound flows" on page 3-19).

As per claim 9, Template further discloses the grouping model component (compound flow junction box) providing synchronization of concurrent interdependent transactions based on the completion of the concurrent interdependent transactions (forming a concatenation of the two or more input work items, as a result of an *And* junction condition; see "Creating compound flows" on page 3-19).

As per claims 10 and 11, Template further discloses associating actions (tasks) with transactions (work items; see Table 3-1 on page 3-3 and second paragraph of "About the Task Editor perspective on tasks" on page 6-2). Therefore, the transaction grouping model component disclosed by Template also functions as an action grouping model as claimed.

As per claim 12, Template discloses a user interface component (Workflow Design Editor) and a plurality of model components (tasks, flows, work items, roles, junctions, and labels) accessible through the user interface component and adapted to allow a user to create a model of a business process (workflow design; see "Introduction" on page 3-2, and in particular, the first paragraph of that section), the plurality of model components comprising at least one boundary establishing component (flows) for defining transaction (work item) boundaries (a flow defines a possible route between tasks through which a work item can travel; see Table 3-1 on page 3-3). It is unclear from the disclosure of Template whether a process algebra is used to implement the model described. However, as admitted by Applicant, "it is well known in the art that PI-calculus can be utilized to model processes" (see page 12, paragraph 3 of the amendment mailed April 8, 2003). Therefore, if not already inherently included, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the product described in Template to include the use of a process algebra. One would be motivated to do so implement process modeling using well-established and widely supported means.

As per claim 13, Template further discloses a component for establishing concurrent operations (copy flow; see Table 3-1 on page 3-3 and "Creating copy flows" on page 3-20).

As per claim 14, Template further discloses a component for establishing sequential operations (plain flow; see Table 3-1 on page 3-3).

As per claim 22, Template discloses a user interface component (Workflow Design Editor) and a plurality of model components (tasks, flows, work items, roles, junctions, and labels) accessible through the user interface component and adapted to allow a user to create a model of a business process (workflow design; see "Introduction" on page 3-2, and in particular,

the first paragraph of that section), the plurality of model components comprising a component (compound flow junction box) for defining concurrent synchronizing constraints as occurring upon the completion of the autonomous operations (forming a concatenation of the two or more input work items, as a result of an *And* junction condition; see "Creating compound flows" on page 3-19). It is unclear from the disclosure of Template whether a process algebra is used to implement the model described. However, as admitted by Applicant, "it is well known in the art that PI-calculus can be utilized to model processes" (see page 12, paragraph 3 of the amendment mailed April 8, 2003). Therefore, if not already inherently included, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the product described in Template to include the use of a process algebra. One would be motivated to do so implement process modeling using well-established and widely supported means.

As per claims 23, 24, and 28, Template discloses a method of, software for (Workflow Tamplate 8.0), and means for: distinguishing between synchronization of autonomous concurrent operations (using separate flows) and interdependent concurrent operations (using a single flow; the copy flow allows operations using the same flow to be represented independently; see Fig. 3-3 on page 3-12 in which the copy flow junction box supplies the same "REQUISITION" flow to both the "Approve Requisition" and "Check Inventory" tasks); expressing synchronization constraints on completion of autonomous concurrent operations (forming a concatenation of the two or more input work items, as a result of an *And* junction condition; see "Creating compound flows" on page 3-19); and associating transaction operations and groups of business operations (creating a workflow design that represents the flow of work throughout your business; see "Introduction" on page 2-2). It is unclear from the disclosure of Template whether a process

algebra is used to implement the model described. However, as admitted by Applicant, "it is well known in the art that PI-calculus can be utilized to model processes" (see page 12, paragraph 3 of the amendment mailed April 8, 2003). Therefore, if not already inherently included, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the product described in Template to include the use of a process algebra. One would be motivated to do so implement process modeling using well-established and widely supported means.

As per claim 25, Template further discloses a graphical user interface (Workflow Design Editor; see "Introduction" on page 3-2, and in particular, the first paragraph of that section) adapted to allow a user to model a business process using the components.

Claim Rejections - 35 USC § 103

16. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

17. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Template as applied to claim 13 above.

Official notice is taken that it was well known and commonly practiced in the computer art at the time the invention was made to incorporate a computer readable medium into a computer system in order to allow data transfer between the medium and the system, such as, for example, for the execution of a program embodied in a CD-ROM medium on such a computer

system. Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to have a computer readable medium residing on a computer system as part of a system incorporating the Template product.

18. Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Template as applied to claim 12 above, and further in view of U.S. Patent No. 5,940,839 to Chen et al.

As per claim 15, Template discloses such a system for business process modeling including a user interface and a plurality of model components (see disclosure applied above to claim 12) but fails to teach a compensation model component adapted to compensate committed interdependent concurrent transactions and being invoked upon the occurrence of a failed interdependent concurrent transaction. However, Chen teaches, as part of a transaction processing method and system, such a compensation model component (transaction management system (TMS) mechanisms; see column 5, lines 10-48) adapted to compensate committed interdependent concurrent transactions and being invoked upon the occurrence of a failed interdependent concurrent transaction (see column 2, line 65 through column 3, line 33). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the Template product to incorporate a compensation model component as once taught by Chen. One would be motivated to do so to provide the ability to handle transaction failures.

As per claim 16, Chen further teaches transactions being children in a parent transaction (as part of an "ancestor tree"; see column 3, lines 24-27) wherein a compensation routine is invoked by the parent transaction (the failed transaction is undone by proceeding from the in-

process closest recoverable ancestor (ICRA) transaction; see column 3, lines 11-33). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to further modify the Template product to include invocation of a compensation model component by a parent transaction as per the teachings of Chen. One would be motivated to do so allow recovery of a failed transaction by reverting back to a parent transaction.

As per claim 17, Chen further teaches calling compensation routines within the committed interdependent concurrent transactions (see column 9, lines 4-17). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to further modify the Template product to include compensation routines within committed interdependent transactions as per the teachings of Chen. One would be motivated to do so enable elimination of the effect of a transaction.

As per claims 18-20, Chen further teaches calling compensation routines within a failed transaction based on information on committed transactions stored within a database (see column 8, line 61 through column 9, line 5). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to further modify the Template product to include the compensation model component calling compensation routines within the failed interdependent concurrent transaction based on information on the committed interdependent concurrent transactions stored within a database as per the teachings of Chen. One would be motivated to do so allow for compensation of committed transactions beyond the failure affected scope.

19. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Template as applied to claim 24 above, and further in view of U.S. Patent No. 6,393,456 to Ambler et al.

As per claims 26 and 27, Template discloses such software, including the first, second, and third components performing functions in a schedule (see disclosures applied above to claim 24), but does not explicitly disclose the software comprising a programmable language having an XML syntax. However, Ambler teaches that workflow specifications may be written in such a programmable language having an XML syntax (see column 8, lines 42-46 and column 12, lines 49-59). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the Template product to include a programmable language having an XML syntax as once taught by Ambler. One would be motivated to do so to provide a robust tool for specifying workflows.

Conclusion

20. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric B. Kiss whose telephone number is (703) 305-7737. The Examiner can normally be reached on Tue. - Fri., 7:30 am - 5:00 pm. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Tuan Dam, can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

EBK
October 22, 2003

WEI ZHEN
primary patent Examiner